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ABSTRACT

This paper attempts to reformulate some assumptions of contemporary social science so that its knowledge becomes directly applicable in social action. A schema is presented for the interpretation of social experience in which sociological, anthropological, and psychological knowledge and knowledge of the physical and biological world enter into a concrete, aesthetically patterned, social totality incorporating the moral ordering and emotional commitment necessary for action. The philosophy of Alfred North Whitehead is used to present the dilemma of seeking the concrete from the abstract, that is, of interpreting social knowledge and social action. Tactics developed by social scientists for meeting this difficulty are sketched and the question of why the transformation of thought into practice necessitates a philosophical revolution is considered. In the course of answering that question, a more detailed statement of the basic terms of Whitehead's conception of events is provided. Finally, a discussion of changes required by social science methodology is presented. Discussion closes with a consideration of the aesthetic principles in the order of nature and society. (Author/LP)

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WHITEHEAD AND SOCIAL SCIENCE

The Use of Social Science Knowledge

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WHITEHEAD AND SOCIAL SCIENCE

The Use of Social Science Knowledge

Praxis is the Issue

The public at large suspects and social scientists know that social science knowledge, applied to social policy, does not work. We blame incomplete research, "unintended consequences" due to failure to comprehend the situation, misapplication of findings out of ignorance or out of deference to political interests. In truth, social science knowledge developed by methods similar to those used in the natural sciences is not applicable directly to social life. Knowledge consisting of statements about the relations among abstract, analytic variables is not, as it stands, translatable into courses of concrete social action. The different ways of abstracting in the several social science disciplines further complicates a return to reality. No aesthetic rules combine these perspectives into a concrete totality. Finally the ethical neutrality, or objectivity, of science blocks the morally integrative moment in social action and evokes no emotional commitment to action. Ironically, all of these elements, the isolating abstraction, the interpretative frames of reference suitable to several particular subject matters, ethical neutrality and affective neutrality are the sources of the explanatory power of the social sciences and acuteness of a social science truth which is independent of the standpoint of a particular knower. Indeed, it is not argued here that our methods and results are useless, far from it. The problem is that they give us only part of what we need.

The different ways of thinking about nature and culture is a special, and more serious, case of a abstractive diversity hindering the application of knowledge. The solidarity of the social, cultural and natural orders is

basic to human experience, yet the effort to analyze them has led to incommensurable results.[1]

This paper attempts to reformulate some assumptions of contemporary social science, so that its knowledge becomes directly applicable in social action. The approach here is to seek a schema for the interpretation of social experience in which sociological, anthropological, psychological, and other types of disciplinary knowledge, as well as knowledge of the physical and biological world, enter into a concrete aesthetically patterned, social totality, incorporating the moral ordering and emotional commitment necessary for action.

The previous pages have set the problem; the difficulty in translating statements of social science into statements of social policy. Part of the difficulty may be traced to the founding of social science thought in the philosophies of substance. This last led to the construction of theories from abstract analytic concepts, sometimes including concepts developed in variant frames of reference. It is impossible to synthesize such

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[1] Ideologies are developed around the differences between nature and culture; perhaps, one should say, further developed. The natural may be contrasted with the "artificial" in social organization itself. The sociologist Werner Sombart distinguishes "natural" relations, such as those between a people and its land, language and race, from "artificial" relations based on socially created economic ties and, their outcome, social class. Ideologies of social change, or, better, social purification have revolved around such thinking.

The interest in distinguishing nature's action from human action derives, in part, from a theological concern with the position of man in the cosmos. Is man continuous with the animals; perhaps, a bit more complex? May thinking be understood as a "higher order" conditioned response? Psychologies of experience, deriving from Hume ground human knowledge in animal sensations and can reply affirmatively to both questions. Alternatively, is man's ability to conceive of and produce new tools or to symbolize, to contemplate and discuss matters when no signs or signals of those matters are present, proof of human distinctiveness.

abstractions returning to the palpable world from which they were drawn. The philosophy of organism, as a foundation of social science, promises one way of returning applicability to the field. The reader should not anticipate a full working-out of this argument with a demonstration of useful social science in these few pages. The present statement is programmatic.

The next few pages introduce the reader to a few of the technical terms used by Whitehead. A short statement of the dilemma of seeking the concrete from the abstract, of dealing with incommensurable frames of reference, and the special, more serious, case of the difficulty in dealing with the interweaving of natural and social events, as presented in the world of common sense.

Social scientists are not unmindful of the difficulties raised here and have developed tactics for meeting them without a philosophical revolution. These tactics will be sketched. Then, we will ask why a philosophical revolution is necessary to deal with this very practical, and narrow, problem. In the course of answering that question a more detailed statement of the basic terms of Whitehead's conception of events will be given. Finally, specific social science insights available from a Whiteheadian perspective will be illustrated.

The discussion of changes required in social science methodology ensues. Analysis would shift from variables, and their interrelations, to concrete and particular social communities in action. An almost exclusive emphasis on explanation in terms of efficient causation will give way to entertaining more seriously the role of final cause in social action. A concern about the external relations among social events will turn to a concern about their internal relations. The discussion closes

with a comment on the aesthetic principles in the order of nature and society and what it may mean to look at the field or space of action as well as at the nodes of action.

Essential Terms of the Philosophy of Organism

The philosophical thought of Alfred North Whitehead will be used to interpret social knowledge and social action. His philosophy of organism has been developed in four of his later works; the relatively popular Science and the Modern World, the more technical, Process and Reality, and his two topical essays, Symbolism and Adventures of Ideas. The secondary literature on these works will be cited as needed.

A special vocabulary for his so-called "provisional realism" is used by Whitehead and by Whitehead's students. Such a vocabulary is necessary because of the shift in vision from a philosophy of substance, as the basic substrate of Reality, to a philosophy of events, in which the process is the Reality. The following paragraphs introduce the terms standing for fourteen of his central ideas. The reader should achieve a vague working image of these ideas from their use in this sketch of reality as process. The terms include: actual entity, concrescence, satisfaction, eternal object, relativity, prehension, feeling, decision, social order, personal order, nexus, causal efficacy, presentational immediacy and God.

The core idea is that of an "actual entity", "the final real thing of which the world is made up", a "drop of experience", a "unit of process." A social science example of an actual entity parallels the Weberian "historical individual" such as "capitalism or the Roman Catholic Church, with a major difference. The historical individual is the product of idealist philosophy and so is constituted by cultural meanings.

The philosophy of Andrew Whitehead provides the framework for a reformulation of contemporary social science to facilitate the translation of research into e-fective polic Material is presented in three sections. The specialized vocabulzaty Whitehead developed to descriv abstract and concrete socia reality is described A statement of the dilemma of seeking the concre-e from the abstract and the difficulty in dealing with the interweaving of natural and social events includes a description of of the specialized vocabulary developed by Whitehead to describe abstract and concrete social reality. Tactics developed by social scienteists for applying social science research to real world sitiuations are sketched without . Anf specific social science insights available from a Whiteheadian perspective are illustrated.

Capitalism, for Whitehead, is a palpable event carrying within itself all of the daily life-ways, including the material object that life involves, as they are experienced. In Science and the Modern World, Whitehead describes the solidarity of the world in terms of interrelations among acutal entities or events. All events are ingredient in other events. Events constitute a process moving towards "concrescence", the growing together of the many into the unity of the one. Each actual entity attains its "satisfaction", terminates, and perishes, as a concrete complete datum for fresh entities.

A second core notion is that of eternal objects, "forms of definiteness capable of specifying the character of actual entities." Like secondary qualities in substance philosophy they become manifest when ingredient in an event. Their role in one actual entity qualifies another actual entity. The blue of a uniform and the blue of the sky join in a single experience. One experience conditions the other. As a social science example, the experience of aggressivity is such an eternal object. The experience is manifest only in concrete contexts, as it enters the parent-child relationship, the relation of salesman and customer or military action. Any idea of aggressivity, per se, is achieved by identifying some commonality among these occasions, an exercise that defines the range of potential manifestations of the eternal object.

The solidarity of the world is realized in the process of concrescence, he writes in Process and Reality. Developing organisms, moving toward their concrescence, are self-determining in character. Each organism imposes itself on its environment and, in this way, contributes to the experience of solidarity. Any actual entity involves other actual entities as it moves towards its self-determination. Whitehead observes in

Process and Reality that Hume also noted that simples combine into complexes, impressions into ideas, but argues that Hume did not distinguish the manner or order in which simples constitute one complex. Whitehead uses the concept of "efficacious fact" to indicate that a candidate entity already has some of the characteristics of the actual entity with which it combined. The eye is light sensitive, the receptor tuned to its stimulus. The history of the actual entity is one source of such characteristics and so determines which entities are candidates for mutual entertainment.

The history of the politics of energy offers a social science example. A political organization seeking control over energy resources already has a potential for exerting power. Acquiring energy facilitates the exertion of this very power. Had the original organization not been competent to engage in instrumental action, had it been, for instance, an artistic company, energy resources would not contribute further effectiveness.

To state the relation between energy and social power simply as one of joint occurrence, a correlation between an organizational potential for instrumental action and the level of energy consumption as it extends the scope of control, misses this particular point. The substantive is issue that the past becomes the present of a social organization. The potential for energy exploitation becomes a social kinesis. Whitehead refers to the principle of relativity to say that every item in the universe, including all other actual entities, enters the constitution of any one actual entity.

Why does this approach not lead to monism? How does it differ from finding one metaphysical substance underlying everything? Whitehead's answer refers to dominant institutional orders. Thus, the way an economy

is conceived is not independent of religion, as the debate around the Protestant ethic shows. But religion is not absorbed into economic relations, thereby, as economic reductionists might contend.

The relations among actual entities are conducted through prehensions. Prehensions, a more generic idea than perception, are the vehicles by which one actual entity becomes objectified in another by feeling what is there and transforming it into what is here. Also, feelings and prehensions are the vehicles by which eternal objects ingress into the actual entities. Concepts such as perception and cathexis, from psychology, are specifications of the idea of prehension bound to consciousness. Prehension is applicable to the physical world as well.

Monism is further avoided by the fact of gradations of prehensions. Not everything is incorporated equally. Further still, certain prehensions are incompatible laying the basis for a "decision" for inclusion or exclusion of an actual entity, or eternal object. As a result, different nexus (plural) of actual entities emerge. A "social order," an important type of nexus, consists of actual entities sharing a common element of form. The members of the nexus impose this form on one another. A class, in Marxist social thought, exists for action not simply potentially, but actually, when members share class consciousness, a sense of one another, and of their common situation.

If in addition to the imposition of the common form there is also a genetic relatedness among the elements, Whitehead calls it a "personal order." Thus, one may speak of the contemporary Roman Catholic Church as a descendant of the medieval Roman Church. Its official and collective memory attest to this. For instance the current position on deicide shows the organization's ancestry.

The different types of nexus of actual entities account for the distinction between enduring non-living objects and enduring living objects. The histories of the former are dominated by the principle of "causal efficacy." Causal efficacy is the basic mode of inheritance of feeling from past data felt as the efficaciousness of the past. It is the way the past slips into the present as actual entities succeed one another. Enduring living objects are dominated by "presentational immediacy," the mode of perception which seizes upon vague emotional feelings and transforms them into sharp qualities which are then projected into a percipient occasion. Conscious knowledge and imagination arise in this perceptive mode.

Energy resources arrive at their present moment through a chain of causal efficacy. An actor grasps them in that same mode. The actor's experience is then interpreted in the mode of conscious presentational immediacy. The two modes are synthesized in the solidarity of a physical-social act.

This interplay between the natural and the conscious social world is a subject of Whitehead's last major work, Adventures of Ideas. The interrelationship is expressed as that among instinct, intelligence and wisdom. Instinct is the mode of experience arising directly out of the urge of inheritance, individual and environmental. Under it we awake immersed in satisfactions and dissatisfactions. A drive theorist would see in this, built-in physiological tension systems. A Jungian could identify this as the experience of present imagos emerging from an inherited collective unconscious. Wisdom is a decision which determines the mode of coalescence of instinct with intelligence. Consciousness and the physical world are intertwined under the control of wisdom.

In Science and the Modern World, Whitehead recalls that Aristotle required God in his system as a prime mover. Whitehead requires God as a principle of a concretion. At the heart of Whitehead's system is the notion of a nexus of actual entities moving towards a final state. Why one state or one pattern rather than another? An aesthetic principle is needed to account for the fundamental patternings which determine the nature of the reality and the process.

God is the great harmonizer, the principle by which every occasion becomes a synthesis of all eternal objects, and a synthesis of all occasions, as they are limited by gradation, that is by type of entry of one occasion into another. This principle, God, accounts for the solidarity of the actual entity as it moves towards concretion.

The major shift in orientation for the social scientist adapting a Whiteheadian perspective is from a concentration on eternal objects, abstracted attributes, variables, and the complex relations among them, to a concentration on actual entities or events, relational patterns. The way eternal objects ingress into these actual entities and the way those entities develop toward concretion is the path of applied social sciences. Returning to Weber and the "historical individual," Whitehead would criticize the limitation of the historical individual to a pattern of cultural meanings, excluding the objects proper to a Naturswissenschafft. A second problem is that Weber's notion of process was directed to a pre-established, definitive end, such as a rationalization, an objectification of a given Hegelian geist. The use of the concept of charisma to account for "break-throughs" in an evolutionary process was a good try.

Abstraction and the Concrete

Abstractions and the unversals constructed from them are, ordinarily, the bread and butter of science, the substance of which scientific laws are made. The problem of the detachment of abstractions from the concrete is not lost on materialist scientific theory. A not uncommon response is to retreat from theory as a way of assuring a grip on the concrete. Sometimes called "mindless empiricism," this is an escape into indicators for empirical generalizations, held to have face validity. The tactic fails. Manifest events are almost infinitely variable, and demand some system of classification. For example, the economic value of family activity is expressed by subsumed the notion of "monetizing" the acts of each family member. The one has earnings from labor, another contributes labor, salary foregone, to the maintenance of the household and another accrues a debit in the cost of clothing, feeding and educating.[2]

Whitehead aims for the most general ideas about reality, yet his work is a polemic against abstraction. His road to generality is not through isolating common attributes in a number of otherwise differing actual entities. Were the scientific covering law simply accepted as a heuristic, a model of how eternal objects might qualify actual entities, it would create no problem for Whitehead. A model for the modes of ingression of eternal objects into actual entities is a first step in understanding

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[2] The cash equivalent of this household economy could be used as a predictor of family formation and level of fertility. The correlation, properly controlled, may be statistically significant, yet account for only a small amount of the variance. The measures are literally drowned by other considerations. A pro-natal social policy that inferred from the correlation that a state contribution of food, clothing and education would increase fertility might find that the dominant result is an increase in child survival and a strenthening of an achievement motive, both of which might have anti-natal consequences.

the potentials of those objects.[3] However, they may not, in themselves, be taken to describe concrete reality. To do so is to confuse analytical propositions, universals constructed on a basis of abstract concepts, with empirical generalizations, regularities observed in the behavior of concrete events.[4] Perhaps Whitehead's best-known phrase is the "fallacy of misplaced concreteness," taking an abstraction to be a concrete thing. Misplaced concreteness is a special case of the fallacy of simple location, believing that an object can be understood as being in a particular place at a particular time.[5] The belief in simple location undercuts inductive reasoning. He says, "if in the location of configurations of matter

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3 Abstract things, eternal objects, have an important function in scientific theorizing. Eternal objects, like Platonic ideas, transcend particular occasions. Platonic ideas stand as models for phenomena. Eternal objects define possibilities for actualities. An eternal object cannot be described as belonging to a class. Whitehead speaks of the multiplicity of the eternal object, what one can learn about it by comparing the actual entities into which it ingresses.

Each eternal object conditions the other. However, this conditioning can only occur within actual entities. To speak of the effect of blue on red is not meaningful, but talk of mixing blue paint and red paint, or blue light and red light offers a concrete result. In psychology, one could not talk abstractly of the effect of a hostile attitude on an attitude of attraction to an object, the idea of ambivalence. One could talk of an interaction within a given personality of these attitudes, some manifestation of ambivalence.

4 The statement that an increase in social density leads toward greater division of labor in a society is an analytical proposition. It does not become meaningful until one locates that relationship in a particular society. The process is differently manifest when the society is a family governed by particularistic norms and when the society is an economic free market, governed by universalistic norms. Compare this with Toynbee's empirical generalization that ailing civilizations under an environmental challenge disintegrate into a dominant, oppressive, minority and a proletariat which becomes conscious of itself. The secession of the proletariat is the genesis of a new civilization.

5 Whitehead traces the fallacies to the "inheritance from ancient science of motion." Motion is taken as the variable and mass as the "permanent feature during all changes of motion."

throughout a stretch of time there is no inherent reference to any other times, past or future, it immediately follows that nature within any period does not refer to nature at other periods." As Lawrence (1968) puts it, mere location in space-time neglects other types of being.

Victor Lowe (in Schlipp, 1941) says that the problem of abstract concepts is that they do not represent immediate deliverances of experience. Actually, the fallacy of simple location occurs because the object in its physical setting at a particular time is indeed the deliverance of experience, of common sense experience. This apparently is something that common sense has learned to do in order to think about and act in the world. A sociologist would fall into this trap by taking the physical individual as the unit of analysis while ignoring the roles and norms and organization of actors, among other aspects of the action, in which the individual is embedded.

True abstraction is not available to experience. Whitehead (Symbolism) says "We do not perceive disembodied color, but we perceive a wall which enters our experience through color." We may then abstract and think of mere color. This requires the discarding of the discrete relationship between the wall at the moment, and the percipient of the moment. Abstractions are ways of analytically removing some aspect of reality and holding its still for inspection.

The contemporary scientist may take the relations among abstractions, the analytical propositions, as expressing an underlying permanent reality, asked by the variable manifestations. Whitehead holds that abstractions should not be taken as the basis for universals. They are rather a means for interpreting actual occasions, for apprehending the concrete. Abstract attributes, such as qualities and relations, Whitehead says (Symbolism)

"express how actual things contribute themselves as components to our actual experience." They objectify for us actual things in our environment.

An actual entity cannot be described even inadequately by universals because other actual entities enter a description of any one (Process and Reality). This is his doctrine of relativity.

A chasm exists between abstraction and praxis. One cannot reconstruct the concrete social world by combining abstractions. In Whitehead's words (Process and Reality) "a concrete particular fact is not built up of universals."

Varieties of Abstraction in the Social Sciences

No one doubts the common sense solidarity of the behavioral world, that its political, economic and religious faces all hang together as a single reality, and that social policies, applied social science, presume such solidarity. Yet the disciplines abstract from behavior in different ways.[6]

These perspectival disciplines, together, do not reconstitute the solidarity of real life. Further, however, each discipline may employ different and not necessarily compatible rules of concept formation and

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[6] Talcott Parsons (Toward a General Theory of Action) describes these different directions of abstraction. Psychology attends to all those acts emanating from a given individual. The pattern of these socially oriented acts and the underlying mechanisms they manifest constitute personality. Sociology deals with interaction among actors. Roles, enactments of social positions, are clustered in institutions and governed by norms and values. Anthropology deals with the system of symbols which are internalized in the personality as needs or motives and are institutionalized in society as behavioral expectations. Economics, like sociology is a study of interaction, but concentrates on interaction around the allocation of resources. Political science also abstracting the interactive aspects, concentrates on interaction around the distribution of power and the implementation of control in social systems.

rules of correspondence, the latter linking the abstractions to their indicators. Thus, learning may be described using a reinforcement model. In anthropology, totemic classifications may be interpreted socially using a structural functional model. The institutionalization, or learning, of a new totemic form could not easily be accounted for by a reinforcement model. For one thing, reinforcement theory refers to individual change while totemism is a collective phenomenon. For another, a functional explanation would understand institionalization in terms of some effect in a wider system, an explanation by "final cause." A pattern of rewarded repetitions can refer only to past experience. A heroic attempt might be made to account for the collective result in terms of aggregation of small increments of individual learning. The principal diffi[illegible], however, with a direct association between abstraction in different frames of reference is that a concept assumes its meaning from the net of concepts in which it occurs. The idea of reinforcement becomes meaningful when placed in a context of concepts of extinction and patterned exposure to stimulus. The idea of totemic classifications become meaningful when treated as a symbol with a particular function in a pattern of cultural meanings.

The Social and the Natural

Common sense tells us that the rate of consumption of energy by a society is associated with the intensity of social life. A tribe of hunter-gatherers is not an industrial city. Common sense also tells us that social interest in energy resources, taking the social as the initiating force, influences the state of those resources. Our rush from place to place with the aid of the reciprocating engine helps convert the world supply of subterranean crude into atmospheric gases. Yet, when we try to develop the scientific theory about these relationships, we are

stymied by the problem of relating concepts constructed in disparate incommensurable frames of reference.

At first blush, even common sense, not simply the scientific practice, suggests two different kinds of reality. We are suspended on the ontological dualism of mind and matter. The epistemological dualism, the differing ways of knowing them, is merely derivative. On the one hand, the order of nature consists of material objects dispersed in space and changing over time. On the other hand, the social order obeys rules of symbolism, of meaning and interpretation, involving a culture constructed by the will and purposes of human beings. On the one hand, we have matter, on the other, mind. Matter behaves according to the deterministic, or at least stochastic, laws of nature. Society is ordered around psychic events, represented in contracts and rules, but, if properly observed, will also be found obedient to probalistic expressions. On the one hand, conventional formulas express the relationship between dimensions of mass, length and time and on the other hand, we have actors, norms and goals. Vitalists might argue for three domains; dead matter, living matter and symbolic process.

A first hint of problem with dualism is in the lack of social agreement about the boundary between mind and matter. This is akin to the problem of nature and culture and the issue of natural law and man made law. Christian theologians have long argued the applicability of natural law to volitional acts, such as murder. What is of nature, and what is of culture? The the wrath of heaven is promised to the Jew who eats leaven on the Passover, the punishment of being "cut off" from the people of Israel. Meted out by God this is an "automatic" act of Nature. Every beginning social science student distinguishes between the statement that taking

poison is fatal, and the statement that a murderer must die. Yet, if suicide is a violation of natural law, the avenging society can hardly resist its duty to meet the threat the suicide poses to the harmony of the universe.

The French anthropologist, Levi-Strauss (The Savage Mind), shows that the line between culture and nature varies with the cultural mentalities of societies. A totemic classification brings together, under a common rubric, foods tabooed or craved by a pregnant woman, with plants and animals, considered medicinal or masculine, to form a solid whole characterizing the society. Levi-Strauss, typical of contemporary social scientists, sees the issue as essentially epistemological, not ontological.

In this tradition, the American anthropologist Richard N. Adams, writing on energy in society (Energy and Structure), rejects an ontological dualism between mentalistic structure and physical structure. People merely use two sets of concepts and rules of order to examine these aspects of the world. The fundamental point of reference, he argues, is the matter of control. Structure refers to events out of control of some actors. Energy is structure for those lacking the technology to turn it into the servant of social power. Unconscious events are mentalistically structural, because they are beyond the control of the actor.

Alfred North Whitehead in Symbolism, says it is a pure convention which of our experiential activities we term mental, and which physical. This is an astounding statement. Everyone knows the difference between a human being and a stone. Whitehead attributes the mind-matter dualism to the faulty metaphysical notion that the substrate of reality is substance characterized by secondary qualities. The qualities account for the myriad appearances of substance as observed. When these qualities are referenced

by the abstract concepts of scientific theory, a faulty epistemology results. Whitehead, in Science and the Modern World, says "to the enormous success of the scientific abstraction, yielding on the one hand matter with its simple location in space and time, on the other hand, perceiving, suffering, reasoning, but not interfering, has foisted onto philosophy the task of accepting them as the most concrete rendering of fact. Thereby, modern philosophy has been ruined. It has oscillated in a complex manner between three extremes. There are the dualists who accept matter and mind as on an equal basis. Then, there are two varieties of monists, those who put mind inside matter, and those who put matter inside mind." He concludes that a provisional realism is required, in which the scientific is recast and founded upon the ultimate concept of organism.

The interaction of the natural and social worlds are certainly studied by those who accepts the dualism of mind and matter. One tactic is to examine one with the other held constant, and then, if we wish, reverse the relation. Thus, the relationship between population density and the division of social labor is examined first in high energy consuming society and then examined in a low energy consuming society.[7]

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[7] We have an image of two four-fold tables lined up side-by-side on a page with each table showing the two variable relationship under one of two values of the third variable. The level of energy consumption need not be treated in a binary fashion. Using regression methods, or the analysis of co-variance, we deal with a system of three continuous variables. The mathematics of the analysis is not sensitive to the differences in the frames of reference of the several variables.

Aside from the statistically holding constant, there is a "holding constant" at the interpretative phase. The type of role that energy plays in social action might be considered a constant.[8] The manner in which energy intervenes in the picture is not a constant. Yet, in one type of society, energy is consumed in a continuous votive fire. In another, it is released in a shaped charge, as an act of war. Energy pursues different social ends in the high and low energy societies.

Energy, using Whitehead's language, may be treated as an eternal object. It is an action potential until it enters into some physical or social system. In the above example, its mode of ingression and the character of the actual entities, determines whether it contributes to worship or aggression. It may enter social action simply as an object of orientation, as when nations compete for control of oil fields. All of these are, in Whitehead's terms, conceptual prehensions.

Energy may be an active component facilitating or inhibiting social action, as in the behavior of the man-machine unit, called an automobile driver, burning energy and at the same time expanding the scope of control.

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[8] The idea of the division of labor varies from society to society. To follow Durkheim's analysis of this question, we face several social types, each known by a particular relation to specialization, and each responding in its own way to energy consumption. The undifferentiated social mass may be a "horde" agglutinating under the rules of mechanical solidarity. A more differentiated society may show, as Durkheim puts it, a growing preponderance of relations of organic over mechanical solidarity. At a high level of social differentiation, the society may lose the binding power of its basic institutions, moving toward anomie, the increasing individualism of advanced industrial society. Under each of these situations, the population is not simply growing, multiplying in size, and in the complexity of relations, it is changing in its organization. It is a nomadic camp, a village, a town, or it is the centralized authority of a chieftainship, or a village divided into two clans, or moities, on the basis of descent.

Energy has the character of an actual entity as it is operating concretely as part of the technology, establishing a bond with the encompassing social system. It is linked to action through what Whitehead terms a physical prehension. The very aim of the social system shifts in the light of the energy potential available. Thus, the developmental trajectories of a tribal society may lead to centralized political action while an industrial society extends its power through economic means.

Tactics for Praxis Despite the Mind-Matter Distinction

Mind-Body Correlation

The tactic of "holding constant" avoids the issue of discrete frames of reference by a pretense of being theory free. Three approaches, common in contemporary social science, engage the issue of theory: the mind-body correlations of psychophysics, the cultural perspective approach and the search for generic concepts. The psychophysics example is in the "intervening variable" tradition. The last two approaches presume "hypothetical constructs."

By the late 19th century the field of psychophysics had already produced a methodology for translating, for example, weight as measured in the physical system to heaviness as experienced psychologically. A scale based on a person's judgments of "just noticeable differences" in comparing weights was introduced. In recent decades, S. S. Stevens (e.g., "Mathematics Measurement and Psychophysics" in Stevens (Ed.) Handbook of Experimental Psychology, New York: Wiley, 1951), with a more sophisticated method, conducted experiments to establish exponential functions relating, for example, the amplitude of a sound wave to loudness, as a human experience. For each sensory modality, light, sound, temperature, Stevens sought the

proper exponent for the formula which linked the physical measure to the psychological measure.

A symbolist variant on this arises in analytic psychology. Freud, for example (The Problem of Anxiety), develops a theory relating physical symptoms, inhibitions of psychophysiological functions, to psychological meanings. The psychological meanings speak in a body language. Male impotence, for instance, an inhibition of the sexual function, may be conceived to result from an expenditure of energy by the ego defending itself against a castration fear or for that matter against a fear of being aggressive.

The Stevens "intervening variable" approach seeks a formal mathematical expression linking values of the two variables. This expression is the theoretical statement. It is an empirical generalization rather than an analytical proposition. The Freudian theory depicts an economy of psychic libidinal energies which command the behavior. The introduction of the imagery of mediating processes, the hypothetical construct, leads Freud in a somewhat different direction. For him intrapersonal variation in weight or loudness estimates as a function of the meaning of the element being judged is central. The meaning depends on the role of the object in the person's psychic economy. Both linkages use a transformational symbolism. For psychophysics, a transforming formula performs this function. For psychoanalysis, the transformation is through the hydraulic-like language of libido, and a repressive ego. Neither questions the mental-physical dualism.

The Cultural Perspective

Social scientists, with the possible exception of human ecologists and some theory-resistant environmental sociologists, agree that their

disciplines are about systems of behavior, not systems of physical things. Behavior occurs with respect to or is elicited by physical things. Physical objects may be admitted to social action by admitting their cultural meanings and ignoring, as outside the frame of reference, their chemical or biological characteristics. Thus, a bullet is described by the intent of a murderer, not ballistically. Talcott Parsons offers an example (The Structure of Social Action, p. 29) of the exclusion of physical characteristics in explaining a social event "...the velocity of a man falling off a bridge as he is about to strike the water is a physical fact. But if the person in question is a suicide it is certainly not proved by the statement of the fact that all the antecedents of which this velocity is a consequence can be explained in terms of the theory of mechanics."

The tactic is heuristically helpful. A good deal of social scientific analysis can be accomplished in this way. However, the tactic fails to offer closure if lessons for praxis are of interest. An ear of corn enters an economic demand equation as a bearer of a price, a propensity to pay on the part of a market participant. A clod of earth justifies the struggles of a nation on the basis of its meaning as the sacred ancesteral soil. To take the contrary example, a physical perspectival analysis, a person washing clothes is relevant to the chemistry of stream pollution by indexing a rate of flow of detergent into the stream. A person in an office building enters the air conditioning equation as a source of heat and a passenger on an airplane enters as a weight as the pilot trims the ailerons.

We notice an assymetry between the usefulness of the cultural and physical abstractions. Terminating the analysis with this perspectival concept is sufficient for the pilot but leaves the social planner ineffective. Policy makers deal with the problem of perspectival

knowledge by observing a convention. The concept referred to by the isolating abstraction is held to correspond to an idea, for which the same term is used, in action. Thus, if an equation shows that a negative "tax on income" correlates with shorter "durations of employment" the policy-maker may propose denying an income supplement in the expectation that employment tenure would increase. The negative income tax research of the past decade found no such result. One measure for this is that the non-abstracted elements, such as "long range" labor force commitment," in the example, refuse to lie still. The fallacy of misplaced concreteness, what the Marxist theorists calls reification, equating an abstraction with concreteness, is more vengeful in social policy than in technological procedures.

Generic Concepts

A common language of higher order concepts is another way to overcome the incommensurability of the disciplines. Talcott Parsons' General Theory of Action, a well known attempt, makes no pretense at including the physical world other than as a cultural object of orientation. Thus Parsons' conceives, for example, of three modes of orientation of action: intellectual, affective, or emotional, and evaluative or organizing. Psychological, sociological and cultural aspects of orientation are to be considered under each mode. For example, the second mode is the cathectic orientation, dealing with affect. For personality, the concepts in this mode refer to the expression or inhibition of feeling. For society, they refer to institutionalized expectations that actors will relate emotionally or non-emotionally, as the case may be. On the cultural level, they refer to norms governing the release of feeling or symbols which may evoke feelings. The generic concept, specified for each level of social science

abstraction, facilitates the codification of a unified theory of personality motives, social relations and cultural norms. Statements about the consistency of motives and role expectations, for example, may be explored without worrying that these two concepts might be incompatibly conceptualized.[9]

Why Resort to Metaphysics to Meet a Practical Problem of Science

Metaphysical Ideas as Empirical Ideas

Why reach for metaphysical ideas to discuss a problem in the application of the social sciences? The first cue may be taken from Whitehead. Metaphysical ideas are themselves, empirical ideas, highly general empirical ideas. They encompass the ideas of science, natural and social.[10] The ideas of empirical science are dominated by the conceptual

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9 Another example is given in Parsons' theory of social subsystems, such as the economy and the polity, as they function in a larger social system, a society. Variables may be defined generically for the society and specified for each subsystem. Economic theory, for instance, does not consist of a separate class of variables. General social concepts are specified in terms of economic parameters. For example, any social role may be characterized by the a general concept of performance and sanction. The first term refers to an act initiated for the maintenance of a subsystem. The second refers to the response of the larger system In economics, the performance may be supply, the production of utility or economic value, and the sanction may be demand, the disposition to pay. The sanction affects the future rates of supply. In a psychological learning theory performance refers to an act elicited by a tension within the personality, sanction to the response or Kant's reward encouraging or punishment or inhibiting future acts.

10 This would not be true for the metaphysical notions of all philosophers. A Platonic Idea or the Kantian noumenon are beyond the reach of human senses.

While true metaphysical Reality was out of empirical reach for Plato and for Kant, their attention to that Reality led both of them to an appreciation of empiricism. The tension between the empirical and non-empirical is symbolized in western philosophy by Plato's myth of the cave, and in modern times, by Kant's phenomenal "things" in relation to the noumenal "thing in itself." Natural scientists following his advice

rules of metaphysics. Whitehead's metaphysics is bound to "stubborn fact." "The delineation of final metaphysical truth" is not Whitehead's concern. Yet, he continues, (Science and the Modern World), argue that the ultimate arbitrariness of matter of fact from which our formulations start should disclose "the same general principles of reality which we dimly discern as stretching away into regions beyond our explicit powers of discernment."

Whitehead's comparison (Process and Reality) of the relation of fact and general idea is to the flight of an airplane, which starts on the ground with certain particular observations and reaches flight into imaginative generalization, then landing for renewed observations, which are rendered acute by rational interpretation.

Ann Plamondon (1979), an interpreter of Whitehead's philosophy of science, explains why a theory, metaphysical or otherwise, more general than that of science is necessary. Metaphysical theory, she says, systematizes science. Theories of the same level of generality cannot be

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to attend to the phenomenal found themselves liberated from philosophy. Socio-cultural scholars following this advice found themselves with an inadequate methodology. Kant had limited himself to cognitive knowledge, saying less about the world of affects, of mythic thought and moral judgment. Kant's Critique of Practical Reason must, for social scientists, become the companion to his Critique of Pure Reason. Still a "categorical imperative" is a constraining way to think about moral action.

Theologians could not so easily abandon the non-empirical realm but could seek to contemplate its relation to everyday experience. Paul Tillich (The Courage to Be), for instance, reaching into ontology compares absolute anxieties and relative anxieties. The ontic anxiety of fate is a background for the relative anxiety rooted in the unpredictability of the outcomes human action. The threat of non-being is experienced as absolute in the threat of death and as relative in the threat of fate. The absolute shadows the relative as in the Whiteheadian notion of more general and less general experience. Man's sense of fate might be less inescapable, were it not shadowed by death.

critics of one other.[11]

A metalevel theory is also needed, continues Plamondon, because true universals are rare in science. Most of general statements are accidental universals, that is, they hold under certain conditions. Thus, for example, economic laws of the market which hold for capitalistic economies may not describe distribution under the administered prices of a socialized system.

Events Not Essence

Plamondon,) reflecting on Thomas Kuhn's distinction between revolutionary and normal science, says that a metaphysical discussion plays no role in normal science, but it does in a scientific revolution. Whitehead is part of the Einsteinian revolution. He displaces a philosophy of substance with philosophy of reality as a process.[12] The basic "stuff"

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[11] She must mean that they cannot be critics of the classes of concepts both share. They can critique findings and the use of a concept, from the given class, to represent the findings. That is what we mean by suggesting alternative hypotheses to explain findings.

According to Whitehead (Adventures of Ideas) ideas of high generality express conceptions of the nature of things, of possibilities of human societies. Such ideas are free of the constraints of particular conditions. To stay with the earlier economics example, they would express the character of economic forces independently of the rules of capitalism, socialism or feudalism.

As a further example, take the Huizinga notion of economic activity as play (Homo Ludens). This spontaneous human activity may be harnessed by the three types of political regimes mentioned, as well as by others not yet constructed. Pure play is only a possibility until it ingresses, expresses itself through, one of the actual economic entities.

[12] The first scientific revolutionary change discussed by Kuhn, the Copernican revolution, did not require an abandonment of the philosophy of substance. The shift from a geocentric to a heliocentric theory, and the accompanying philosophical anthropological reassessment, reordered things in the universe. The second revolution, from Newtonian to Einsteinian science, required, at the outset, acceptance of the notion that substance is not a constant under all conditions. One key to this is that the spatial matrix is differently deformed as objects approach the speed of light. The geometry of space replaced analysis of things in a presumed empty space.

of the world consists of events. These events are processes, evolving actual entities. The actual entities are the variable element and the eternal objects the permanences in this philosophy. The final scientific descriptions are not of evanescent abstract attributes but of the evolving actual entities.

Experience as the Key to Solidarity of the Universe

Experience, whether of the physical, natural or of the human and social order, is the basis of the uniformity attributed to metaphysical Reality. It is also the source of belief in the solidarity of the world.

In Process and Reality Whitehead defines speculative philosophy as the endeavor to form a coherent logical necessary system of general ideas in terms of which every element of our experience can be interpreted. The experience, and general ideas which interpret it, includes everything of which we are conscious as enjoyed, perceived, willed or thought. The terms coherent and logical refer to the rational side of the schema. To interpret experience is to identify a particular instance of the general schema.

Experience is taken as "the final real thing of which the world is made up." The world comes to us as "drops of experience, complex and interdependent." These drops of experience are the actual entities.

The general ideas which interpret experience are realistic. They are not realistic as reflections of reality or maps of social relations, the way Marxist ideas of theory and praxis reflect the reality given by the

mode of production.[13] The ideas are, themselves components of reality. The subject, including the scientific observer, is drawn into the object, the datum, in the process of experiencing it.

What does this mean for objectivity? How can the facticity of the world be distinguished from moral judgments about it? Does involvement of the observer not deny the independence of the observed?[14] Whitehead would respond that fact and values should not be separated but, at the same time, his position is objectivist.

Nathaniel Lawrence (1968) concludes that there is no proper line between fact and value. For Whitehead both fact and value are woven into the fabric of life. Values may be eternal objects. Their contribution to the event is as an organizing principle respecting final satisfaction of the event. The actual entity, as it moves towards its satisfaction, consists of evaluated fact. Value ideas may be abstracted analytically but the values in action are not determined until something is evaluated, until they encounter a behavioral datum.

The fact/value distinction, in dualistic philosophies of substance assumes an observer external to the datum. Facts are matter, external to

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[13] Whitehead rejects the Kantian position that we intuit the phenomenal world, organizing it mentally according to a priori forms of space, time and causality. Kant was led, thereby, toward a study of mind, particularly cognitive appreciation, promoting the study of symbols as the key to social as well as natural reality.

[14] When this question is asked in contemporary social science two responses are offered. The observer observes many situations. By internal comparison, each particular experience can be distinguished from all other experiences. Second, a number of observers experiencing the "same" actual entity may, through discourse, discover what is common to their otherwise diverse experiences.

an observer. Valuing is mind, activity of an observer with respect to facts. For Whitehead the actual entity is, at once, the subject experiencing and the "superject" of its experience. The actual entity is realized in the experience.

Why, now, does this does not imply subjectivism? Whitehead rejects subjectivism. The world as known trancends the subject. It does not depend on the way in the way in which it traverses our naive experience. Subjectivism is an assertion that we have only our experience. As he says (Science and the Modern World) subjectivism is "the belief that the nature of our immediate experience is the outcome of the perceptive peculiarities of the subject enjoying the experience." The objectivist holds that the elements perceived by our senses are, in themselves, the elements of a common world. Whitehead says his is an objectivist philosophy, adapted to the requirement of science and the concrete experience of mankind.[15]

The interpreter observer is not merely contemplating the world but is constructing it. Emmet (1966) points out that interpreting experience through general ideas is, for Whitehead, an active construction. It is not the external object that is constructed. The subject is engaging in

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[15] This seems not unlike Max Weber's treatment of the subjective meaning of an act to an actor in relation to the meaning to an observer. The observer experiences a subjective meaning supposedly similar to that of the actor but the latter remains an objective datum.

self-construction with respect to the world.[16] As Emmet puts it "for Whitehead the experiencing subject arises out of the world."[17]

Much of his philosophy is dedicated to the elimination of the mind-body distinction. In its place he has physical and mental experience. As he says (Process and Reality) "each actuality is bipolar. Physical inheritances accompanied by a conceptual reaction properly conformed to it, introduce evaluation and purpose. The integration of the physical and mental side into a unity of experience is a self formation which is a process of concrescence."

Whitehead for Social Scientists

A Philosophy of Events for a Science of Action

What would change if social science method were to shift from, say, a Humean to a Whiteheadian approach. In some respects as with the Copernican revolution, the procedural differences would not be all that radical. We would still rely on observation, on the research methods which systematize the observations and on statistical methods to assist us in evaluating

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16 This is reminiscent of George H. Mead's conception of the relation of the I and the Me, two components of the self. The objective existing, I apprehends, the Me, the self as object. In the light of the treatment of the I by others, the Me, and the I as well, are formulated anew. The self concept, the Me, is constructed and becomes a part of the reality of the self, the I, as the latter is doing the constructing.

17 The rejection of subjectivism, Lawrence (1968) points out, is Whitehead's effort to purge science of idealistic epistemologies. Yet, Whitehead in his rejection of the Cartesian subject/object distinction seems to approach Hegel's unity of subject and object, though for different reasons.

error in observations. We would still test hypotheses about the relations among abstracted attributes. That would, however, only be a way station to the discussion of the potential ingressions of those eternal objects in the actual entities. The aim of the research would be closer to typological methods. than to the covering law methods. It would be closer, to take an example, to developmental than to experimental psychology. Cultural pattern recognition, as practiced by social anthropologists, would be more central. Today, it is primarily a source of hypotheses to be validated under more controlled, experiment-like conditions. These validations might consider the "joint occurrence" of the conceptualized patterns in a number of societies.

The priority would be reversed in Whiteheadian social science. The experiment would be the intermediate research step designed to deepen our understanding of particular cultural patterns. One aim would be to trace the evolutionary path of the societies. Scientific universals would show how eternal objects enter into the constitution of the patterned organism as it evolves.

Much of social science is already systems theory, built on organismic presuppositions and so would not be resistant to a step toward a fuller Whiteheadian "concrescence." Most systems theory, though, remains, externalist, a Whiteheadian looks for internal relations, a point that will be developed later.

The implications of the philosophy of organism for the social sciences have yet to be drawn. This paper is but a start. Students of Whitehead, like the master himself, have devoted themselves more to the analyses of experience of the natural world. Process theology has been a significant

tributary, expanding on the later Whitehead immersed in poetry, ideas of the Ultimate Harmonizer, and the moral bases of civilization.

The relevance of Whiteheadian thought to social science was proposed by Dorothy Emmet (1966) shortly after studying with Whitehead in the late 1920's. She suggested then that a philosophy of substance is irrelevant to a science of action. The traditional dependence of psychological thought on Hume's sensationalism, or in the case of the political science and sociology, on Hobbes' argument for species preservation through a "contracted" commonwealth, were both essentialist and bound to a stabilized present. A social science based on events framed by the process of concrescence, the coming into determinate form of a pattern of action, the perishing of that action system to be superseded by another concrescent event, describes the world of social action. Social action is purposive though the purpose is not necessarily coincident with the actor's end in view. The important purpose is not given by the consciously formulated goal, the manifest purpose assigned by an individual, but the implicit, latent purpose determined objectively by the collective organization of action.

Emmet wrote that society is not properly conceptualized as a mechanical order. As stated few contemporary sociologists would disagree. Social order is organic. The customary methods for social study, though, are those appropriate to a mechanical order. Concepts are based on the logic of classes. Events are assumed independent in tests for error and the universals are established by running through a series of occurrences with a common element. The universals, so helpful in natural science, established on the basis of repetition, are inadequate for understanding of society as a living order

where each organism has some unique characteristics. As an example, families may be considered alike in a number of respects, and so may be taken as units of analysis. One type of family may include two parents and a daughter and a son resident in a single household, dominated by patriarchal authority accounting descent bilaterally and adhering to the Swedish Lutheran Church. Yet, each and every one of the families with these characteristics has a peculiar family tree, a peculiar genetic, even psycho-cultural composition. Each one is not repeatable, that is, substitutable as units of the natural world might be.

Whitehead, himself, did not write much about social behavior before his last book, Adventures of Ideas. After a long career, first as a mathematician, then as a philosopher of the natural sciences, he turned to the root ideas of civilizations as his life summation.[18]

Whithehead's interest has been more in the social than in the sociological consequences of his philosophy. In Science and the Modern World he drew the connection between philosophy and morals. The doctrine of minds as independent substances, he wrote, leads directly, not merely to private worlds of experience, but also to private worlds of morals. Moral intuitions are held to apply only to the strictly private

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[18] Yet, as he sought to describe a metaphysic suitable for the physical sciences he reached out for a language more familiar to social scientists. Experience of the physical world was subsumed by terms such as feelings, subjective aim aesthetic appreciation and God.

The role this language plays in his thinking suggests that he was reading the writings of the Viennese psychoanalytic schools, or works influenced by them. Or, perhaps like Freud and Jung, he borrowed ideas from Pierre Janet, mediated, in Whitehead's case, by Henri Bergson.

Had this language been used by a scientist a century earlier, his readers would have been apprehensive about a revival of animism, of each rock having its genie. The language of psychology was not farfetched for Whitehead, whose philosophy rests on a phenomenology of human experience.

world of psychological experience. Further, the assumption of the valuelessness of mere matter leads to a lack of reverence in the treatment of natural or artistic beauty. The materialistic philosophy emphasizes the given nature of the environment, directing the social conscience of mankind to the struggle for existence in a fixed environment.

His own thought led him to a cooperative rather than a competitive view of society. The problem is not how to produce great men, he said, but how to produce great societies. The great society will put up the men for the occasions. Successful organisms modify their environment. Those organisms are successful which modify their environment so as to assist each other.

Metaphysical Ideas Specified for Social Science

Continuity of Process

In Science and the Modern World, Whitehead specifies some general ideas of a speculative metaphysics for physics. We add illustrations from the social sciences for three fundamental ideas of the philosophy of organism: continuity, atomism and permanence and change. The idea of continuity is the interconnectedness of all aspects of process. The illustration from physics is the electro-magnetic field. Physical activity pervades all of space. Space is not empty. Its character is given by the activity in it. A location in space is a potential for the emergence of the activity. A social science example is that of continuity within the boundaries of a social-psychological system. Sensory deprivation experiments show the organism crying for experience, for environmental stimulus. Activities are connected across time. The Natural History of Revolution, the Edwards thesis, illustrates the developmental continuity of social conflict. The imagery of George H. Mead and Charles H. Cooley on

the emergence of the mind from the social field is another illustration.

What types of social science would be excluded under this principle of continuity. One example would be what Parsons' (The Structure of Social Action) calls "emanationism." That thesis would predict behavior on the basis of cultural norms, neglecting the social structure through which they work. The cultural symbols would be discontinuous with the psyches that carry them and with the structure of the relationships in which they are enacted. Similarly, any single factor social theories would be excluded. A theory that historical societies may be classified adequately by the form of subsistence dominant in them, as hunting-gathering, sedentary agriculture and industrial, isolates economic from other social activities.

Atomism

The second idea is atomism. In substance philosophy atomism suggests the discreteness of material entities. In process philosophy it refers to the pulsating character of process. Quantum theory in physics offers an image of bursts of energy within a continuous pattern. In the social sciences, theories of social change by small increments followed by a readjustment on a new level of integration would be atomistic in this sense. Lewinian field theory describing higher level integration of the field and the Freudian theory of psycho-sexual development fit the pattern. The idea of a boundary maintaining system is consistent with atomism. Each has an unique intra-systemic order with ties to, but a pattern different from, other systems in environment. Thus, an industrial organization organizes its roles and statuses to manage, an internal polity, to allocate resources, an internal economy, and to use symbols to maintain employee motivation. The description of the organization, thus far, is a static structural one. Each of these structures functions with respect to

the organization as a whole. The management "inputs" an allocative policy to the internal economy. The economic sector of the industry contributes to or decreases the power of management. This interaction can occur because each subunit is a "quantum," an organized "pulse" affecting its neighbors.

Permanence and Change

Whitehead's special treatment of permanence and change is illustrated for physics in the conservation of energy, quantitative permanence in the whole system. Underlying it, the various forms of energy change one into the other, deteriorating, increasing entropy, towards heat. Social equilibrating mechanisms, an aspect of boundary maintaining systems, maintain constancy in the system as a whole while a disturbance in one part of the system is balanced by an adjustment in another.

Vilfredo Pareto's residues and derivations offer another example. Residues, like underlying instincts, and a permanent part of the collective psyche. Particular groups are known for the preponderance of one or another residue, the foxes for the "residue of combinations," and the lions for the "persistence of aggregates." The derivations are the variables. They are the surface manifestations, the behaviors and the myths, which express the underlying residues.

Elements in a Whiteheadian Social Science Methodology

Limits of the Analysis of Variables

Common sense perceives a multitude of social and natural occasions. Science, using general ideas, subsumes this variety within a smaller number of events. Substance philosophies seek an underlying essence, which, as a result of secondary qualities, is manifest in varying guises.[19]

Whitehead retains the conception of constants and variables in the life of the events but does not derive their status from a notion of a two-tiered world of manifest variability and secluded simplicity. Eternal objects are the constants and actual entities the variables. Actual entities correspond to particulars and external objects to universals in substance philosophies. The universal can enter into the description of many particulars. A particular, Whitehead says, (Process and Reality) is described by universals and does enter into the description of any other particular. The actual entity cannot be described by universals because

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[19] The search for the relatively constant "trace line" represents a theme in sociological theory. In contemporary empirical analysis, this trace line is a more general class of events to which the particulars observed belong. This is the case with the factors subsuming items in a factor analysis, with the unidimensional Guttman scale linking a sample of items or with the latent structure of the Lazarsfeld model, to name a few. All of these suggest the common form shared by actual entities in a Whiteheadian "social order."

In some earlier, more theoretical models, the underlying event, is held to produce the manifest events as emergents. The sociology of knowledge, such as that of Mannheim, treats ideologies, political or philosophical ideas, as manifesting underlying objective social forces, such as the location of the person or class in the social structure. Ideas may be considered an adaptation to a life problem common to occupants of a social location. The kind of adaptation they are depends upon the theory. Location may constrain the person's vision, determining the possible ideas. Alternatively, the ideas may be rationalizations intended to reduce the stresses induced by the location. Another possibility is that the ideas are a rational expression of the economic interests of the class which, in turn, is shaped by the role in subsistence determined by the social location.

other actual entities enter into the descriptions of any one. This is part of his doctrine of relativity.

In the sciences grounded in substance philosophy, the permanent precipitates the variable. Thus, the residues generate the derivatives. The philosophy of organism requires that the variable precipitate the permanent. The eternal objects appear as precipitates of changing actual entities. The latter is nearer to the common sense notion of the world, closer to learning theory than to the sociology of knowledge.[20]

The permanent element is, in part, a common element, as in substance philosophy. An eternal object makes an unique, that is common, contribution to all actual entities. As Whitehead says (Science and the Modern World) "the essence of an eternal object is merely the eternal object considered as having its own unique contribution to each actual occasion. This unique contribution is identical for all such occasions in respect to the fact that the object in all modes of ingression, is just its identical self."

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20 This insight cuts through Weber's polemic with Marx. Framed within substance philosophy, the polemic appeared to concern the priority of material and of ideal factors in history. For Marx, the structure of social relations, a moderate factor determines ideas, the latter being epiphenomenal. This is Marx' turning Hegel on his head. For idealists, the idea or geist is primary and is objectified in the phenomenal world, quite in the New Testament tradition of "in the beginning was the Word." Weber agreed with Marx, that the adoption, if not the origin of, ideas is related to the social positions of their bearers. Yet, once created, ideas assume a power of their own, "functional autonomy," to shape history. It is as if two theories are needed, one an existentialist, materialist to account for the theory of the genesis of social norms, and the other an essentialist, ideal theory to account for the function of social norms. For Whitehead, eternal objects are created, precipitated by the process of an actual entity and then ingress in, giving form to, that and succeeding actual entities.

Yet the role of the eternal object differs for each occasion. He says, in the same work, "it varies from one occasion to another, in respect to the differences of its modes of ingression."

From a social science perspective, this is the question of the way that nature and culture constrain or facilitate or direct the development of society. Whitehead rejects the Platonic notion of an Idea as a model. Yet, the unique contribution of an eternal object is its functioning as a paradigm, the unique contribution, with modifications in its successive realizations in different occasions.

The contribution of an eternal object is modified by the archetypal character of an actual entity. The subjective aim, in the concrescence of the actual entity, seems governed by an archetype. The archetypes notion, is, Dorothy Emmet (1966) points out, a copying theory. The copying is not passive but involves the setting of ground rules for diverse occasions. The actual entity determines the way an eternal object is exhibited. Its commonality is inferred, or learned, from the series of situations in which it ingresses and is exhibited.

One danger is that an eternal object will be considered a thing in itself. For that matter, any single component of actual entity might be isolated and treated as a concrete reality, an instance of the fallacy of misplaced concreteness. Thus, a physiological need is an object which ingresses into activities designed to satisfy it. It may ingress into a variety of activities and be satisfied in a variety of ways. The need, however, has no existence apart from the physiological system whose status it is expressing.

Evolving Events

In the previous pages, the notion of a two-tiered system has been used in two senses: with reference to the mind-material distinction and with reference to variables and constants. Contemporary social science deals with two levels of system in a third sense distinguishing the theoretical and the empirical orders. The concrete world is presumed to evince an empirical order, an assumption fundamental to the scientific enterprise. In Western social science, though not in the Marxian variety, the stuff of science consists of abstract models, theories. The theories, consisting of concepts and propositions, strive for closure and order.[21] The aim is to construct a theoretical system which is a model for empirical reality. The two levels are related by "semantic rules" or "rules of correspondence" in the language of the philosophy of science.

Whitehead rejects this two-tiered notion of theory and empirical systems offering his organic view of nature. Attention is riveted to events.

As events envolve an order evolves, distinguishing one event from another and establishing priorities among them. The relations of systems and subsystems in a Whiteheadian organism begins, paradoxically, with the notion of self-determination of an actual entity. This is a paradox because we find the principles linking events with one another in the internal constitution of each event. The nexus of actual entities becomes

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[21] Econometric theory, for example, expresses this network of propositions through clusters of simultaneous equations. The most common, but not the only form, is that of the linear regression equation which associates one dependent with a series of independent variables. These may be graphically represented by the convention of a computer-related flow diagram or by path analysis diagrams, which sociologists adopted from plant geneticists.

an overriding event, a plan of the whole. This plan influences the character of each of the subordinate organisms. Thus, Whitehead says (Science and the Modern World) that the molecules may indeed blindly run, but they differ in their character according to the organic plan of the structure in which find themselves.[22] A social system example is that of interplay between collective and individual action. As Whitehead says in Process and Reality, "The causal laws which dominate a social environment are the product of the defining characteristic of that society. The society is only efficient through its individual members, thus, in a society the members can only exist by reasons of the laws which dominate the society and the laws only come into being by reason of the analogous characters of the members of the society." These analogous characters are the society's defining eternal objects.

Contemporary social theory also has images of an organism affecting subordinate ones. A Jungian archetype is a cultural phenomenon carried in the collective unconscious, but may appear in the dream life of the individual. Subordinate entities do not simply imitate the dominant theme because of the significance of the subjective aim of each subordinate entity. The difference between the family in an authoritarian or democratic society would not adumbrate the differences of the two societies. If the character of the nexus is a matter of mutual conditioning, then, certainly the idea of independence of occurrence of each event, such as is presumed for the application of statistics, would

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[22] In the technical language of Process and Reality, he says "the determinateness and self-identity of one entity cannot be abstracted from the community of the diverse functionings of all entities." A bit later, he adds that "the functioning of one actual entity and self-creation of another actual entity is the objectification of the former for the latter actual entity."

not be obtainable. Yet, common sense tells us that, despite all of the relativity, the world is not homogenous.

What accounts for individuality? For Whitehead individuality is a moment in the terminal phase of a concrescence. In Adventures of Ideas, he writes the moment of individuality of an actual entity is bound by the principle of relativity.[23] An occasion arises from relevant objects, and perishes into the status of an object for other occasions. As an object for other occasions, about to perish, the occasion achieves individuality. About the terminal phase of concrescence he writes, (Process and Reality) "a novel determinateness of feeling absorbs the actual world into a novel actuality." This emphasis in the satisfaction is less confusing if we do not think of long-range process, with social order remaining indeterminate until some utopian future. In process thinking, determinateness and termination, objectification of actual entities, is continuously occurring. Each actual entity perishing during a high frequency sequencing presents the ground for the development of the next actual entity, genetically

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[23] Prehension is the mechanism by which actual entities engage other actual entities. This is an aspect of an actual entity which seeks out an aspect of another actual entity, internalizes it and the entities knit together. Negative prehensions exclude aspects of other actual entities. This key to individuality will be discussed below.

The division of the world between nature and culture depends on prehensions and the closely allied idea of feeling. Feelings may be physical or mental. Each creates a linkage of a specific character. Lower level organisms are determined by a preponderance of physical and higher level of mental feelings. Higher level organisms sustain an immediate physical feeling but it is integrated with perceptual prehension. For higher level organisms, consciousness enters as an aspect of appetition toward realization, the fulfillment of the subjective aim. The basic operations of mentality itself are conceptual prehensions.

related to it, or following the same trajectory. This pulsating, rhythmic process may involve repetition with each pulse. This gives us our common sense impression of enduring concrete things.

Efficient and Final Causes

Of Cause and Social Change

A system in process is a changing system. Even endurance in apparent sameness is the result of process, repetition and recreation. Two types of theories of social change have been popular. One locates the genesis of social change to be in events which occur among the internal components of a system. A dialectical theory of change is of this type. Internal contradictions among elements produces a transcending resolution. The second traces change to the effects on the system of outside forces. Equilibrium or steady state theories are of this type. Only an intervention can upset the internal balance. When it does, the internal components readjust. This readjustment is the observed change. The time sequence is important and differs between the two types of theories. The equilibrium theorist, looking for external forces attends, in Aristotle's language, to efficient cause, the impact of prior events on later ones. The dialecticians, watching an internal process are drawn more to Aristotle's final cause, conceiving of the system moving tropistically toward fulfillment of its purpose.

Newtonian mechanics exemplifies efficient cause. Social sciences have tended to follow suit. In fact functionalist theories in sociology go to some lengths to defend themselves against the charge of teleology. Development of a structure to fill a function is a response to already experienced strains on the system.

The measurement of efficient causality, within the positivist tradition, requires isolating abstractions. The correlations are established among abstracted attributes.[24] Causal analysis measures the extent of the relation among various eternal objects, but eternal objects considered in the abstraction from any actual entities in which they might ingress.[25] An eternal object is known through its participation in an actual entity.

Causality in Whitehead is a matter of the connections between actual entities, a matter of feeling and prehensions and the "lures of feeling." The last refers to the features that draw actual entities together in a nexus and that invite the ingression of eternal objects.

Perception: The Bonds of Change

Prehension refers to the perceptual aspects of experience. Whitehead (Process and Reality) defines two modes of perception. One, perception is in the mode of causal efficacy, describes the way actual entities are drawn together in the realization of a subjective aim. This vectorial element in the concrescing actual entity is the Whiteheadian cognate of causality.

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[24] Thus in the Lazarsfeld-McPhee voting studies, for instance the concept of "breakage" defined as the proportions of the population intending to vote for each candidate, is used to predict the likelihood of undecided voters falling to one side or the other. The aggregate vote intention of the population and the aggregated actual vote of the formerly undecided are abstract variables. The first is considered the "causal" correlate of the latter.

[25] The social researcher, aware of this, must assert that the correlation between the votes discovered above holds only for Elmira, New York. It is an "accidental universal" but is offered in the hope, and expectation, that the association will be confirmed in other locales and in Elmira at other times. Insofar as the statement is particularized to the moments of the observation, one may indeed look upon the situation as that of a dominant actual entity, the total community of voters and their incipient acts, prehended by the subcommunity of uncommitted voters, but such "historicism" would be unsatisfactory to the survey analyst.

Causal efficacy is the basic mode of inheritance of feeling from past data. The second is perception in the mode of presentational immediacy. The actual entity is presented integrally and becomes internally related to the prehending actual entity. The vagueness of the perception gives way to precision and clarity. The two modes are brought together by an interpretative element in human experience. He terms this element symbolic reference. Its function is to give the sense of the concrete to the data. The second is perception in the mode of presentational immediacy. The actual entity is presented integrally and becomes internally related to the prehending actual entity. The vagueness of the perception gives way to precision and clarity. The two modes are brought together by an interpretative element in human experience. He terms this element symbolic reference. Its function is to give the sense of the concrete to the experience by relating the past history and the specific location of the event.

Whitehead feels that Hume's discussion of habits and of thought and Kant's discussion of categories of thought parallel his use of causal efficacy. In all of these a fundamental content is inherited from the past and awaits the specification and the discrimination of new ideas. The image is that of the creation story, an initial confusion, a vagueness, is dispelled by a new clarity.

Meaning potentials erupt into the act in the mode of presentational immediacy. Emotional response awaits the clarification of presentational immediacy. Whitehead says when we hate it is a man that we hate, and not a collection of sense data.

The full effect of the integrative mode of presentational immediacy is enjoyed by human beings. Lower grade organisms live in a world dominated

by causal efficacy, pure instinct, for instance. Instinctive action is the raw material on which institutional action builds.

The sequence of these two modes of perception are important for reasoning, including the reasoning of science. Whitehead writes that for Hume the initial experience is that of presentational immediacy, with casual efficacy following and becoming dependent upon it. Whitehead argues that, on this basis, actual entities would not be causally connected. Inductive reasoning, as defined by Hume as "all fruitful knowledge is based on inference from particular occasions in the past to particular occasions in the future," would be undermined. The idea of efficient cause would also be undermined. Such induction and causal thought occurs said Whitehead (Science and the Modern World) only if there is the right understanding of the immediate occasion of knowledge in all its completeness. Whitehead's reference to "all its completeness" contrasts with the notion that the genetic relation to be causal requires abstraction.

The meaning of induction, for Whitehead, is not the derivation of general laws. It is the "divination of some characteristics of a particular future from the known characteristics of a particular past." The wider assumption of general laws, holding for all cognizable occasions, he says in Science and the Modern World, appears a very unsafe addendum to attach to this limited knowledge. All we ask of the present occasion is that it shall determine the particular community of occasions which are, in some respects, mutually qualified by reason of their inclusion within the same community.

Thus, causality for Whitehead does not require a foundation in abstract variables and would be undermined by such a notion. Abstraction,

that is, objects considered only in reference to "simple location," can tell us only that they are where they are. This is a limited kind of description, not a causal relation.

Causal efficacy is an initial phase of experience to be absorbed within a succeeding presentational immediacy. For example, the realization of an automobile driver that a crash is impending is an experience in presentational immediacy. The understanding and the emotions are synthesized into a shocked response. The experience can be frightening because the driver had already absorbed an understanding of the situational potential.

As a social science analogy, take the distinction between instrumental and expressive action. Instrumental action requires a clear perception of the relation of means to ends, intelligently integrative perception, of presentational immediacy. Expressive action assimilates ends to means. It requires the more primitive, vague, undifferentiated perception of causal efficacy.

In the social psychological experiments on group problem solving, the instrumental separation of means and ends appropriate to the problem solving itself occurs against the solidarity among the problem solvers, the confidence and trust of expressive relations.

Social institutions are classified by the primacy of instrumental and expressive action and, by implication, by the primacy of the two perceptual modes. Economic action is primarily instrumental, based on narrow, focused interests with exchange consummated for a specific goal. Religious action is primarily expressive, its processes creating the solidarity of the group, generating the collective conscience. As Durkheim, the father of this last idea, pointed out instrumental action, as that indicated by the

explicit terms of contract, requires the background of implicit non-contractual elements. These are the grounds of legitimation of the contractural terms, the social solidarity that guarantees enforcement of the contract places causal efficacy before presentational immediacy.[26]

The key process, then, is symbolic reference. Symbolic reference requires some common ground, a basis for the connection, between causal efficacy and presentational immediacy. This general common ground is the eternal object ingredient in both of them.

Internal Control of Change

Efficient causation makes reference to a world outside the actual entity, to its predecessor entities or to its contemporaries. Final cause is internally determined. The distinction is in part perspectival. A final cause for a nexus of actual entities may be an efficient cause for a particular actual entity within the nexus. The priority of subjective aim over efficient cause in Whiteheadian thought reverses the emphasis in contemporary scientific research. This is another aspect of the shift in perspective from variable to social entities. The subjective aim determines the environment of the actual entity, selecting the other actual entities it will prehend. An environmental condition may have a variety of effects on actual entities in the nexus. The specific outcomes depend on the internal character of the entities. However far efficient causation is pushed into the determination of components of a concrescence,

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[26] Religious action may have a magical, and so instrumental, component. The helping of brethren, spiritual exercises, the procedures for the cure of souls or the steps in the order of sacrifice to assure an acceptable oblation are actions dominated by presentational immediacy. They are played against the background of faith, revelation, the instinctual power or mana, all exhibiting causal efficacy.

writes Whitehead, there remains a final reaction of the self-created unity of the universe. This puts a decisive stamp, a creative emphasis on the effect of efficient cause.

The way anthropologists treat cultural diffusion illustrates this selective character. A culture is exposed to a new element. Incorporation of that element follows if the culture is ready for it. Reading readiness in psychology offers another example. The physical ability of the eyes to focus on the page is a prerequisite for learning to read. Final cause acts as what Whitehead terms "a lure for feeling." As such, it controls the effect of efficient cause.

As a sociological illustration, take the combination of institutional rules and physical energy in the life of an industrial organization. The rules determine how the energy enters the productive process. Another type of organization, such as a family or church, provides a different context of rules and invited a different mode of ingression.

According to Whitehead, his position reverses that of Kant. Kant was concerned with the process by which the subjective data passes into the appearance of objective will. The sensuous intuitions are grasped into action. The philosophy of organism begins with objective data and these come under the dominance of the subjective satisfaction. Thus, if one is studying the effect of residential crowding on interpersonal hostility, the philosophy of organism says first locate the particular group and identify its subjective aim and then see how crowding is handled. Crowding at a cocktail party may intensify the joviality as the intimacy is absorbed by effervescent play, but population pressure on scarce resources leads to competition for these resources, migration or the introduction of new technology.

Self-Maintenance and the Causa Sui

Whitehead defines a society as a self-sustaining system. In the social sciences the concept of self-maintaining or boundary maintaining systems is not uncommon. In Parsons' model, as described in his work with Niel Smelser, Economy and Society, the subsystems tend to be equalibrated, self-maintained, around boundary exchanges. The religious system provides the economy with normative legitimation. The economy contributes to sustaining the society, provides an opportunity for moral achievement.

For Whitehead, what appear as boundary exchanges are the prehensions of the respective actual entities entering into the constitution one of the other. The relations are internal. Whatever is internalized comes under the control of the entity that internalized it.

Donald W. Sherburne (1966), a Whitehead interpreter and editor of the corrected edition of Process and Reality, points out that every concrescence is a causa sui, each follows the lure of its subjective aim toward a particular way of becoming.

The discussion of efficient and final cause was introduced as a way of dealing with social change. Process does not imply that the manifest objects of the world are constantly becoming other than what they are.

Yet change is endemic. For Whitehead the steady state is no Nirvana. It is death, the perishing of an actual entity as it becomes objectified in its terminal state and bequeaths its character to a successor entity.

Whitehead identifies (Process and Reality) two kinds of change: first, the conscrescence of the actual entity, the internal change, an existent moves towards its final cause. Tracing a social movement from its inception to its dissolution, would be an example.

The second type of change he calls "transition." Transition is from one particular existent to another particular existent. The development of a sect into a church, following the model of Troeltsch, is an example. The transformation of a civilian work force into a military work force is another example.

Concrescent change is studied by functional analysis, each event understood in relation to the final outcome for the system as a whole. A transitional change demands attention to causal analysis, locating efficient causes for a new emergent.[27]

The growth process is carried along as Whitehead said in Science and the Modern World from prehension to prehension.[28] The mark of growth is establishing new relationships and, thus, successor actual entities moving toward successive concrescences. The history of the Communist Party of the U.S.A. may be taken as an example. That history is of alliances and

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[27] Functional and causal statements may be considered interchangeable. The statements merely reverse one another. Thus, stated one way, the function of a religious ritual is to attain solidarity of the group. Translated into a genetic proposition, we state, a low degree of social solidarity causes social stresses. Ritual performance to this stress which involves assembling members of the tribe to support one another. However, functional thinking about systems calls upon different mechanisms than does causal thinking. In the former, a subjective aim dominates, controlling and unfolding from within. An outside force may do no more than distort or impede the development. Thus, concrescent change is associated with functional analysis. In the latter, a new creature is forming, a religious ritual, or reforming under environmental influence. Thus, transitional change is associated with causal analysis.

[28] Sherburne (1966) says the concrescence, the genetic passage from phase to phase is in physical time. Whitehead said that physical time expresses some features of the growth, but not the growth of the features.

severances of alliances, reaching out for new constituencies and expelling individuals and groups not in tune with the strategy at each stage. The character of the Party and the possible status it might achieve change. That character combines a memory of the past, the immediacy of realization and an indicator of things to come. The memory, to stay with the illustration, may determine which alliances are possible. Each alliance opens and forecloses options. Success in communizing the American labor movement in the 1930's would have given the Party a new blue-collar, nationwide constituency, driving the Party in a more socially conservative direction.

The Solidarity of the World

The Aesthetic Order of Nature

Whitehead characterizes the philosophy of organism as a provisional realism. The reality is the "drops of experience" and the experience is process. In it, nature is a complex of prehensive unification. In it things are grasped, realized as a unity here and now. It is the unification here of the castle over there. Unification includes the observing consciousness with the relevant observations. He recalls William James' description of consciousness as a function, adding, that the private psychological field is merely the event considered from its own standpoint. The unity of the field is the unity of the event. The event is one unity, not a sum of parts (Science in the Modern World).

Within the process, organisms create their own environment, societies of cooperating organisms. The single organism is almost hopeless. Unification tends toward particularity, the concrete, in and with the environment. Above we discussed how individuality emerges at the terminal

phase of a conscrescence. The road to that terminus contains decisions. Decisions express relations. On the one hand, are the actual things for which a decision is made, those elements selected for inclusion. On the other hand, are the actual things by which that decision is made, the focal entity. Decisions constitute the meaning of an actuality. An actual entity arises from decisions for it. By its existence, it provides decisions for other actual entities which supercede it. The pattern of inclusion and exclusion is the source of the insistent "particularity of things experienced."

Eternal objects provide form for actual occasions and include hierarchic patterns and all sorts of discriminations. Every actual occasion is a limitation imposed on possibility. By virtue of this limitation, the particular value of that shaped togetherness of things emerges.

How, ultimately, does one account for particular decisions, why particular patterns, the shaped togetherness, resulting from the decisions? Why does the world appear as the process it is, the arrangement that it is and not in some other way? Here the idea of God is introduced, God the harmonizer, God the source of aesthetic pattern.

Logic and Social Order

The presumption of an order in nature is pre-condition for a science, a system of general ideas about nature. Thought about nature may be organized according to principles of logic. Within the two-tiered conceptions, propositions are discovered by induction and validated by testing the possibility of restating them deductively. Axiomatic theories in sociology do this self-consciously. The logic of such theories is the

logic of classes. Propositions are ordered to suggest hypotheses to be confirmed by observation.

Why should the order of nature correspond to the logic of rational thought? Whitehead seems to believe in such a correspondence, holding that we should try to understand the existence of an order of things by using reason. Faith in reason implies that the ultimate nature is of things lying together in harmony. The harmony of logic, to use his words, lies upon the universe as an iron necessity.

Dorothy Emmet (1966) allows the term logic or illogic to apply to theoretic schemes or any product of our thinking. The terms order or disorder apply to nature. Scientific schemas join general empirical statements to logical propositions.[29]

Levi-Strauss described an ethno-botanical classification demonstrating societally specific patternings of the order of culture together with the order of nature. In the Freudian system the ego may classify things according to its own rules, but the categories of the psychoanalytic system itself, a reasoned system, are invoked to explain the empirical associations. In this sense, rational thought encompasses the non-rational and so "lies upon the universe as an iron necessity." For Levi-Strauss the

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[29] Logic is but slightly helpful in the context of discovery, because it is only applicable after all the terms are defined and the relations known. Logic in the context of justification becomes a rule of scientific reasoning. To illustrate from Merton's theory of social structure and anomie, if an individuals' attainment of a cultural goal is blocked, say, because of the placement in the social structure, one could not, without other data, deduce whether the denied classes will respond with "ritualistic" or "innovative," among other, adaptations. However, after demonstrating empirically how the institutional goals, structural means and adaptive strategies are linked, the relations may be expressed probalistically in "if-then" propositions, the empirical given logical form. The patterns are discovered by experience and restated in logical form.

arrangements of nature vary from one society to another, proposing a culturally relative logic. Few substantive clues to the cultural logic are available. The observer may rely on formal principles, such as the universality of binary patterns. For Freud the associations vary from one individual to another, but the investigator is aided by some typical cultural, and sometimes universal, symbolisms.[30]

Whitehead, not inconsistent with Levi-Strauss writes that there is not simply one ideal order of nature (Process and Reality) but an ideal peculiar to each particular actual entity. The order is conditioned by the subjective aim of the actual entity, a transcending direction of development. As an illustration take an emerging political revolution, an actual entity. New taxation oppressing a particular class, may increase revolutionary mobilization. New electoral reforms admitting adherents of the revolution to the government, may undercut the strength of the revolution. The taxation and the electoral policies produce their respective effects by being absorbed into the subjective aim of the actual entity, the revolutionary movement.

Lawrence (1968) points out that the order of the world is subject to a variety of limitations. These include the past completed occasions and the

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30 Social existence depends on both a subjective and an objective order. The idea of an institutionalized culture, shared behavioral expectations, illustrates how subjective expectation is tied to an objective cultural order.

The correspondence of the meanings of the objective and subjective orders to the actors is a special case. More often the subjective individual motives are framed in terms quite diverse from the objective process. Thus, the invisible hand of competition maintains an allocation of resources which optimizes general welfare. The actor has self-interest, not general welfare, in mind. A society under security threat develops a command hierarchy, organizing the society to meet the threat. The individual motive may refer to relative rank within the society, not to the society's foreign relations.

modes by which the internal object ingresses, or the unique spatio-temporal location of the ingression,[31] the type of causation that is involved,[32] and finally the special logical relation to which all events conform.

Wells, in his Process and Unreality (1950), charges that the Whiteheadian association between logic and natural order reveals a shortcoming. Whitehead accepted the principles of identity and non-contradiction.[33]

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31 The past is significant through its present expression. Thus, in American alcohol culture, the Volstead Act leading to Prohibition is a past event. The event is cited currently to demonstrate a problem in liquor control by law, or, in general, of sumptuary legislation. It also currently demonstrates to the Women's Christian Temperance Union that political mobilization can be effective in eliciting government action.

The achieved alcohol order is affected by the wealth and by the religious beliefs of the community. These enter as symbols, eternal objects, ingressing in a decision to buy cases of liquor. Each ingression has its own peculiar mode. In the example, wealth controls the allocation of satisfaction among consumption wants. Religious beliefs are symbols to which the behavior is referred. The outcome differs according to whether the aim is Dionysian or to secure a libation to the gods. Techniques which simply measure joint occurrence might obscure the significance of these elements. Liquor purchases may correlate more highly with sensual orgiastic usage than with solemnizing, sacred usage. Yet the latter may be a dominant influence on a group's liquor culture as suggested by R. F. Bales' and Charles Snyder's hypothesis to explain the low level of alcoholism among Jews.

32 Type of causation, whether say efficient of final cause, distinguishes an act correlated with previous acts from purpose, an act invoked to attain a future state.

33 That is, an existent is either "A" or "not A" and cannot be "A" and "not A" at the same time. A theory of contradictions such as the dialectical theory which recognizes the coexistence of "A" and "not A" would have been helpful. Wells suggests Whitehead missed this because he had not read Hegel carefully enough.

Because of his acceptance of this principle of identity and non-contradiction, Whitehead's idea of rational thought required that he include a concept referring to the possibility of recurrence. He needed something permanent in the system, although the system was

Whether Whitehead implicitly accepted the principles of identity and non-contradiction may be left to the judgment of logicians. The actual entity, the "drop of experience," the nexus of relationships, is certainly not an essence and certainly not permanent. The eternal objects have permanence in that they may be conceived of without reference to time and space. They only become real, however, when they become a component of the internal relations of an actual entity.

Continuity of the Manifold

The discussion around the constant and the variable in contemporary social science has been linked to the assumption of two or more levels of empirical reality. The constant and the variable issue may be examined as a question of continuity over time or over occasions. In physical theory, the latter refers to continuity in space. Are objects separable by emptiness, or caught in a field of forces as nodes of a continuously active manifold.

The language and ideas we use to understand reality biases this discussion. Concepts freeze reality in place for observation by isolating some particular experience from other experiences. Unless nature, says Wells can be caught without passage, exact observation and knowledge is impossible. Flux is an activity interrelating actual entities. Sherburne (1966) calls the philosophy of organism a cell theory of actuality. The cells are connected through prehensions following principles of selection,

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defined by change. In order to be either "A" or "not A" an existent must be viewed in isolation from any relationships, like essence in substance philosophy. An actual entity is in flux, and always part of a network of relationships. Its internal character is conditioned by this network. In substance philosophy an essence does not depend for its internal character on its relations. Whether the essential existent is a sense object, a perceptual object or a scientific object, its relations always are external. They are definable actual entities awaiting ingression by eternal objects which condition them.

controlled by the actual entities' subjective form. Whitehead points out (Process and Reality) that the interconnection is not taking place at random but follows principles of compatibility and contrariety, the former allowing and the latter disallowing a connection. This type of discreteness means individuality in the manifold but not discontinuity.

Whitehead (Process and Reality) divides events in two ways. A genetic division identifies phases of the concrescence of the actual entity as it moves towards satisfaction. Coordinate division identifies the interdependent parts within actual entities. Each part is a component of the satisfaction. Each component has the character of the unified feeling of the whole from the standpoint of its region.[34] Neither of these forms of division is analytic. The divisions are concrete.

The character of an actual entity may be given by its origins or by its end. For genetic division, the initial phase is determining. A church it does not develop like an economic market. For coordinate division, character is given by the final satisfaction. Each entity is to be understood in terms of its own purpose or function in the system. As the church evolves, it has political and economic components in nuce. At satisfaction, these components may become relatively independent. This is the story of the evolutionary specialization of social institutions.

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[34] Any actual entity has a physical and mental pole. Only the physical pole of the actual entity according to Whitehead is subject to coordinate division. The mental pole is the consciousness of the experience of the actual entity and is, Whitehead says, incurably one. The conscious grasping of experience is synthetic, bringing diversity into unity.

The divisions are concrete. The value-added model used by Niel Smelser to account for collective behavior exhibits the divisions of an actual entity. For a collective activity to explode as a riot, for instance, certain structural strains must press on the actor followed by the mobilization of motivational forces. The model combines genetic and coordinate divisions. The initial conditions prepare for a riot, rather than, say, for a revolution or a cultural craze. The various components, structural strains, values, motivations, all combine toward bringing the event to its satisfaction.

Prehensive Unity

It will be recalled that research based on isolating analytic variables offer no road to the palpable world of everyday life. Tactics for handling aspects of the problem include the use of generic concepts, the perspectival approach by which physical objects enter social action in terms of their meanings and policy-makers' conventions, which, without justification, equate the abstractions with features of the concrete world. The cognitive facts never quite mesh with the emotional and moral aspects of action, the sine qua non for implemention of policy.

The components of the event, eternal objects and the nexus of actual entities, are patterned through prehensions or feelings which invite them into the internal constitution of actual entities. Internalizing eternal objects is a different matter from internalizing other actual entities.

To meet this need Whitehead proposes three primary types of feelings, each specialized in what it prehends for internalization. A simple physical feeling establishes the character of the initial datum. A conceptual feeling takes an eternal object as a datum and, with it,

modifies the initial physical feeling and its datum. Transmuted feelings bring a nexus of actual entities together as an objective datum.

A physical feeling (Process and Reality) is a feeling of real fact, part of the natural or the social world. Conceptual feeling is valuing. The eternal object acts as a principle of organization, defining the character of the actual entity and so judging the admissibility of the fact. Valuing also determines the compatibility of the fact with the feeling, either mental or physical.

Think of an attitude. An attitude is as an integrative focus around which personality needs organize. In a particular personality, the attitude may be compatible or incompatible with the prior attitudes or preexisting needs. It may be adaptive for certain needs but not for the personality as a whole. A neurotic defense mechanism has this character. Prehending is an act of choosing, the seeking of an environment for the actual entity. Each actual entity Whitehead says in Process and Reality "appropriates for the foundation of its existence, the various elements of the universe out of which it arises."

The motive for internalizing arises from the history of the organism and the history of the environment. Personalities develop by establishing relationships with other personalities. Two images of the relation between an organism and its environment are common. One is an impact image; a personality shapes and sculpts its world. The other image is assimilative, like mergers and acquisitions in the corporate world. The organization pursuing self-realization is a scavenger. The exchange model, an interpenetration of internalized and the internalizer, share both images.[35]

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[35] The shift from sculpting the environment to incorporating it is a shift from masculine to feminine imagery. Society as a dominance hierarchy,

Prehension, bringing together actual entities, the unity of the actual entity.[36] The prehensive unity by which actual entities are patterned reaches out to the past and the future.[37] Temporal unity, a duration of time, mirrors in itself all temporal duration. Temporal unification is the equivalent for Whitehead of mind. For Whitehead mind is the function which unifies experience.

Consciousness and the Harmony of Opposites

The idea of consciousness begins with the idea of a proposition. A proposition is a "lure for feeling, a tendency to prehend entities." It arises from the coming together of actual entities and eternal objects. A proposition is not something to verify or falsify. It is a statement about the direction of action and about decisions regarding the selection of actual entities. The integration of physical and conceptual feelings in the proposition, that is the bringing together of fact and valuing, is the basis for consciousness.

Emmet (1966) points out that in some theories the unconscious is taken as a special case of consciousness. In Whiteheadian theory the reverse is the case. The unconscious is identified with instinct. Consciousness is the special case, appearing only for the higher orders of life.

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the masculine pole is replaced by society as a self-actualizing unit, the feminine pole. In a value negative sense, this latter cannibalizes the environment and in a value positive sense, offer soil for growth of other units that meet a the conditions set by the soil.

[36] An actual entity, through its feelings, intervenes in processes other than itself. In intervening it functions as an object for those processes. It "identifies" with the actual entity it is internalizing and which is in internalizing it.

[37] Emmet (1966) locates the urge for the future in the present appetite of the actual entity. The direction of social change is based on current needs qualified by the subjective aim.

Perception, a function of consciousness, is a special case of the more general prehension. Nature itself has no consciousness. It has immanent laws to which consciousness adapts. The controlled adapts to nature in controlling nature.

The great Harmonizer is God. Evil is the characteristic of things mutually obstructive, that is, not achieving order. We end with final opposites, cosmologically determined. Whitehead lists the main bipolar realities of experience: joy and sorrow, good and evil, disjunction and conjunction, the many and the one, flux and permanence, greatest and triviality, freedom and necessity, God and the world. The final reality does not resolve these opposites in a transcendent synthesis. A series of non-resolvable opposites, not even to be resolved by the Harmonizer, God, is the ultimate. This cosmic tension of opposites maintains the flux that is life.

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